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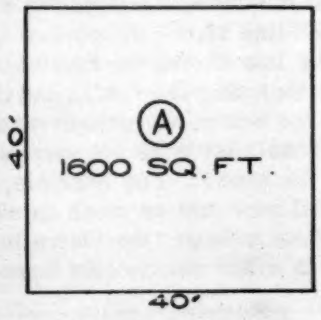
REPRODUCTION COST OF TWO-STORY FRAME HOUSES

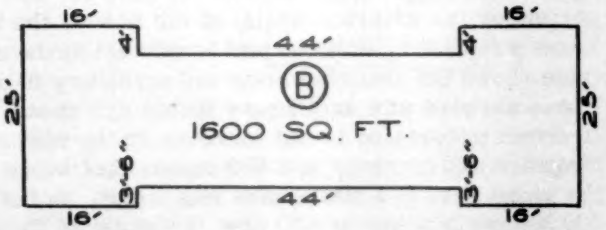
FROM time to time we have published construction cost information on various types of buildings. In almost every case these costs have been on a square foot or cubic foot basis. Of course, while there is a great deal to recommend either of these methods, both of them have their limitations. For example, the square foot method fails to take into consideration changing story heights while neither method considers the changes in unit cost that occur in buildings of different size and shape.

It is not necessarily our purpose to uphold either method since we frequently use them both. Our aim in this bulletin and in many of those to follow is to present an alternate method of checking on the reproduction cost of different types of buildings. This alternate method consists of estimating separately the construction cost of the three main portions of each building: 1. the cost of the outside walls; 2. the cost of the interior partitions and the horizontal surfaces (including the roof); and 3. the cost of the service and accessory facilities.

While the development of this method was started a number of years ago, it has never been widely used in real estate or appraisal circles. This is primarily because it has been little publicized and because the information on the wide variations of cost factors has not been distributed. It is our belief that in sponsoring and further developing this system, we will be giving you a much more accurate tool to use in your everyday evaluation and appraisal work. In addition to being more accurate, this method also has ease of application and, in its entirety, is much more flexible and adaptable than is the square foot or cubic foot method.

There are other advantages to this system. For example, it picks up cost increases that are inherent in buildings of unusual shape. Consider the following buildings:





Both buildings are two-story frame residences covering 1600 square feet of ground area (or 3200 square feet living area) and having the same height. Therefore, they both have the same cubic content. If their reproduction costs were estimated by either the square foot or the cubic foot method, the results would be the same for each building. However, the perimeter of building "B" is 217 feet while the perimeter of building "A" is 160 feet. Therefore, the outside walls in building "B" will cost almost 36% more than those in building "A." In simply using a cubic cost or square foot cost this variation is ignored. However, this variation is sometimes taken care of by the use of "wall ratios" whereby a certain percentage is added to or deducted from the cost obtained by using the cubic foot or square foot method.

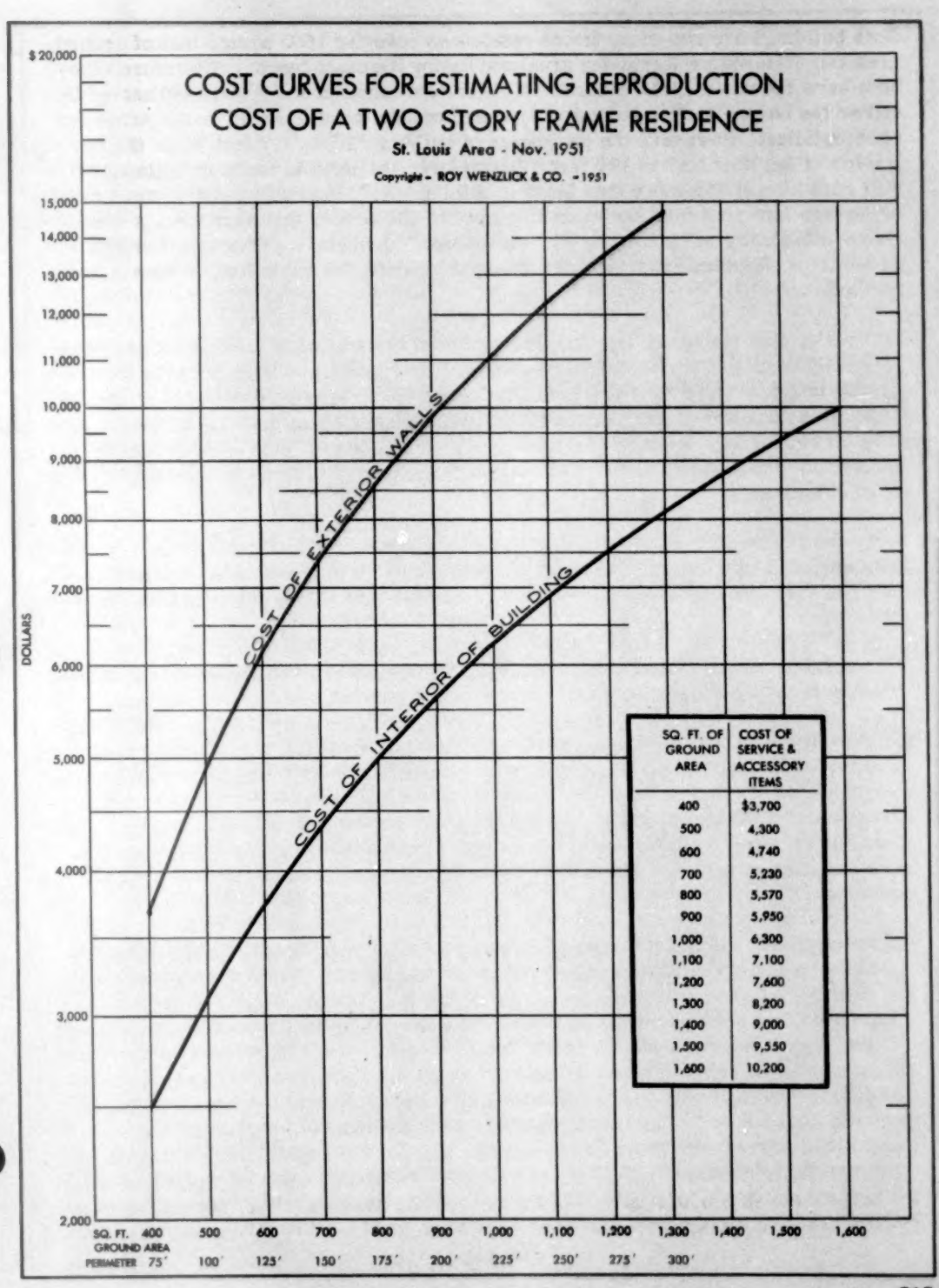
Naturally, this method of applying different cost factors to the three main portions of a building is more involved than using one cost factor and applying it to the entire building (volume or area). On the other hand, we believe that it will give a closer estimate to actual cost than will the other methods generally used. Its chief drawback lies in the considerable number of different cost factors that must be used in order to figure the many different types of buildings that an appraiser must evaluate.

It is, therefore, not enough for us to simply outline this method. Before it can have any wide application, we must provide these various cost factors and indicate the differential in cost between St. Louis and other major cities in the country.

This bulletin will deal with the cost of an average quality two-story frame residence with a full basement, built in St. Louis. In order to convert these costs to the local level, refer to the percentages shown in the table on page 498 of the October 1951 TRENDS BULLETIN. Later on we will publish similar information on other types of buildings and we will also publish a series of standard deductions and additions to be made to the base cost (cost of basements, finished attics, extra baths, insulation, etc.). Eventually, enough information will be published to enable an appraiser in nearly any section of the country to use these cost figures and this method to estimate the reproduction cost on any type of residential property.

On the opposite page are two cost curves and a table to be used in figuring the cost of a two-story frame residence with a full basement. The quality of material and workmanship is average. In using this method the house's perimeter and square feet of ground area must be known. The red line shows the cost of the perimeter (or exterior walls) of the house, the blue line shows the cost of the house's interior partitions and horizontal surfaces (including the roof), and the table shows the cost of service and accessory items for houses of various sizes. These service and accessory items are those whose cost does not increase in direct proportion to the increase in the size of the house. For example, a fireplace and chimney in a 500 square foot house will cost just as much as will the same item in a 600 square foot house. In the same manner, the stairs in a 500 square foot house will cost the same as those in a 600 square foot house.

(cont. on page 516)


COST CURVES FOR ESTIMATING REPRODUCTION
COST OF A TWO STORY FRAME RESIDENCE
St. Louis Area - Nov. 1951
Copyright - ROY WENZLICK & CO. - 1951
$ 20,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
DOLLARS
COST OF EXTERIOR WALLS
COST OF INTERIOR OF BUILDING
SQ. FT. GROUND AREA
PERIMETER
400 500 600 700 800 900 1,000 1,100 1,200 1,300 1,400 1,500 1,600
75' 100' 125' 150' 175' 200' 225' 250' 275' 300'
SQ. FT. OF GROUND AREA | COST OF SERVICE & ACCESSORY ITEMS
400 $3,700
500 4,300
600 4,740
700 5,230
800 5,570
900 5,950
1,000 6,300
1,100 7,100
1,200 7,600
1,300 8,200
1,400 9,000
1,500 9,550
1,600 10,200

The same is true, to a lesser degree, of heating and plumbing items, tilework, insulation and metal work. In this table we have included all of the above mentioned items. Later on we will probably refine them and show individual costs for these various items.

Now let's see how the costs on a two-story house, with full basement and covering 1000 square feet of ground area, will work out. To begin with, let's assume that this house is almost square - or that it measures 30 feet by 33 feet 4 inches. Its perimeter, therefore, will be approximately 127 feet. We follow the red line over until we reach 127 feet on the lower scale and then move directly to the left and read $6225 off the left-hand scale. That is the cost of the exterior walls. We then follow the blue line over until we reach 1000 square feet on the bottom scale and move directly to the left and read $6250 off the left-hand scale. That gives us the cost of the interior portion and roof. Next we pick from the table the cost of the accessory and service items. In this instance (1000 square feet ground area) we find that these items cost $6300. We then add these three costs together, $6225 + $6250 + $6300 = $18,775, total reproduction cost of this house. This is right at 67¢ per cubic foot, or $9.40 per square foot (of living space).

Let's assume, however, that a house with an unusual shape is being figured. For example, let's suppose it has a perimeter of 185 feet. The other two cost totals would be approximately the same, but the perimeter costs would jump to almost $9100 ($9065). Therefore, this unusually shaped building would cost $21,615 ($9065 + $6250 + $6300). This is $10.80 per square foot, or 77¢ per cubic foot. In contrast, the first building with the same area and same volume, costs only $18,775, or $9.40 per square foot and 67¢ per cubic foot.

There are some pitfalls in the set of figures shown on the chart and table. For example, if the figures are applied to a two-story house of 1600 square feet ground area with a perimeter of 160 feet, the total cost is only $28,000. This would be a house with 3200 square feet of living space and three and one-half tile baths. A cost of $28,000 would in most cases be too low. The explanation lies in the fact that the basic figures assume a house of average quality workmanship and materials. In such an enormous house it is quite likely that the quality would border on the class usually found in mansions, and would, therefore, add considerably to the basic costs. Furthermore, a building of this size would probably require heavier supporting materials, more complex and expensive roof framing and thicker foundation walls.

Naturally, we are going to try to develop cost figures for all types of houses-frame, brick, brick veneer, concrete block, with basements and without basements. The figures will include cost data on walls of various heights and interiors of various quality. The publication will eventually take the form of a greatly expanded cost manual that can be used on virtually all types of residential property and on a considerable number of commercial buildings. We have two reasons for publishing this information piecemeal: 1. We believe in getting information into your hands as quickly as possible; and 2. We would like to check your reactions to this material as we go along. In this way we believe we can turn out information that will be more usable.